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RAW SEQUENCE LISTING
PATENT APPLICATION: US/09/753,385DATE: 12/31/2002
TIME: 14:15:22Input Set : A:\10278-025004.TXT
Output Set: N:\CRF4\12312002\I753385.raw

4 <110> APPLICANT: Heartlein, Michael W.
 5 Lemontt, Jeffrey F.
 6 Concino, Michael F.
 8 <120> TITLE OF INVENTION: CHIMERIC PROTEINS FOR USE IN TRANSPORT
 9 OF A SELECTED SUBSTANCE INTO CELLS
 12 <130> FILE REFERENCE: 10278-025004
 14 <140> CURRENT APPLICATION NUMBER: US 09/753,385
 C--> 15 <141> CURRENT FILING DATE: 2002-12-10
 17 <150> PRIOR APPLICATION NUMBER: US 08/470,058
 18 <151> PRIOR FILING DATE: 1995-06-06
 20 <150> PRIOR APPLICATION NUMBER: US 09/037,188
 21 <151> PRIOR FILING DATE: 1998-03-09
 23 <150> PRIOR APPLICATION NUMBER: US 09/285,310
 24 <151> PRIOR FILING DATE: 1999-04-02
 26 <160> NUMBER OF SEQ ID NOS: 12
 28 <170> SOFTWARE: FastSEQ for Windows Version 4.0
 30 <210> SEQ ID NO: 1
 31 <211> LENGTH: 3428
 32 <212> TYPE: DNA
 33 <213> ORGANISM: Homo sapiens
 35 <220> FEATURE:
 36 <221> NAME/KEY: CDS
 37 <222> LOCATION: (14)...(3235)
 39 <400> SEQUENCE: 1
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 41 Met Gly Pro Trp Gly Trp Lys Leu Arg Trp Thr Val
 42 1 5 10
 44 gcc ttg ctc ctc gcc gcg ggg act gca gtg ggc gac aga tgt gaa 97
 45 Ala Leu Leu Ala Ala Gly Thr Ala Val Gly Asp Arg Cys Glu
 46 15 20 25
 48 aga aac gag ttc cag tgc caa gac ggg aaa tgc atc tcc tac aag tgg 145
 49 Arg Asn Glu Phe Gln Cys Gln Asp Gly Lys Cys Ile Ser Tyr Lys Trp
 50 30 35 40
 52 gtc tgc gat ggc agc gct gag tgc cag gat ggc tct gat gag tcc cag 193
 53 Val Cys Asp Gly Ser Ala Glu Cys Gln Asp Gly Ser Asp Glu Ser Gln
 54 45 50 55 60
 56 gag acg tgc ttg tct gtc acc tgc aaa tcc ggg gac ttc agc tgt ggg 241
 57 Glu Thr Cys Leu Ser Val Thr Cys Lys Ser Gly Asp Phe Ser Cys Gly
 58 65 70 75
 60 ggc cgt gtc aac cgc tgc att cct cag ttc tgg agg tgc gat ggc caa 289
 61 Gly Arg Val Asn Arg Cys Ile Pro Gln Phe Trp Arg Cys Asp Gly Gln
 62 80 85 90
 64 gtg gac tgc gac aac ggc tca gac gag caa ggc tgt ccc ccc aag acg 337

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65	Val	Asp	Cys	Asp	Asn	Gly	Ser	Asp	Glu	Gln	Gly	Cys	Pro	Pro	Lys	Thr	
66	95							100					105				
68	tgc	tcc	cag	gac	gag	ttt	cgc	tgc	cac	gat	ggg	aag	tgc	atc	tct	cgg	385
69	Cys	Ser	Gln	Asp	Glu	Phe	Arg	Cys	His	Asp	Gly	Lys	Cys	Ile	Ser	Arg	
70	110							115					120				
72	cag	ttc	gtc	tgt	gac	tca	gac	cg	gac	tgc	ttg	gac	ggc	tca	gac	gag	433
73	Gln	Phe	Val	Cys	Asp	Ser	Asp	Arg	Asp	Cys	Leu	Asp	Gly	Ser	Asp	Glu	
74	125							130				135		140			
76	gcc	tcc	tgc	ccg	gtg	ctc	acc	tgt	gg	ccc	gcc	agc	tcc	cag	tgc	aac	481
77	Ala	Ser	Cys	Pro	Val	Leu	Thr	Cys	Gly	Pro	Ala	Ser	Phe	Gln	Cys	Asn	
78	145							150				155					
80	agc	tcc	acc	tgc	atc	ccc	cag	ctg	tgg	gcc	tgc	gac	aac	gac	ccc	gac	529
81	Ser	Ser	Thr	Cys	Ile	Pro	Gln	Leu	Trp	Ala	Cys	Asp	Asn	Asp	Pro	Asp	
82	160							165				170					
84	tgc	gaa	gat	ggc	tcg	gat	gag	tgg	ccg	cag	cgc	tgt	agg	gg	ttt	ttc	577
85	Cys	Glu	Asp	Gly	Ser	Asp	Glu	Trp	Pro	Gln	Arg	Cys	Arg	Gly	Leu	Tyr	
86	175							180				185					
88	gtg	tcc	caa	ggg	gac	agt	agc	ccc	tgc	tcg	gcc	tgc	gag	ttc	cac	tgc	625
89	Val	Phe	Gln	Gly	Asp	Ser	Ser	Pro	Cys	Ser	Ala	Phe	Glu	Phe	His	Cys	
90	190							195				200					
92	cta	agt	ggc	gag	tgc	atc	cac	tcc	agc	tgg	cg	tgt	gat	gg	gg	ccc	673
93	Leu	Ser	Gly	Glu	Cys	Ile	His	Ser	Ser	Trp	Arg	Cys	Asp	Gly	Gly	Pro	
94	205							210				215		220			
96	gac	tgc	aag	gac	aaa	tct	gac	gag	gaa	aac	tgc	gct	gtg	gcc	acc	tgt	721
97	Asp	Cys	Lys	Asp	Lys	Ser	Asp	Glu	Glu	Asn	Cys	Ala	Val	Ala	Thr	Cys	
98	225							230				235					
100	cgc	cct	gac	gaa	ttc	cag	tgc	tct	gat	gga	aac	tgc	atc	cat	ggc	agc	769
101	Arg	Pro	Asp	Glu	Phe	Gln	Cys	Ser	Asp	Gly	Asn	Cys	Ile	His	Gly	Ser	
102	240							245				250					
104	cg	cag	tgt	gac	cg	gaa	tat	gac	tgc	aag	gac	atg	agc	gat	gaa	gtt	817
105	Arg	Gln	Cys	Asp	Arg	Glu	Tyr	Asp	Cys	Lys	Asp	Met	Ser	Asp	Glu	Val	
106	255							260				265					
108	ggc	tgc	gtt	aat	gtg	aca	ctc	tgc	gag	gga	ccc	aac	aag	ttc	aag	tgt	865
109	Gly	Cys	Val	Asn	Val	Thr	Leu	Cys	Glu	Gly	Pro	Asn	Lys	Phe	Lys	Cys	
110	270							275				280					
112	cac	agc	ggc	gaa	tgc	atc	acc	ctg	gac	aaa	gtc	tgc	aac	atg	gct	aga	913
113	His	Ser	Gly	Glu	Cys	Ile	Thr	Leu	Asp	Lys	Val	Cys	Asn	Met	Ala	Arg	
114	285							290				295		300			
116	gac	tgc	cg	gac	tgg	tca	gat	gaa	ccc	atc	aaa	gag	tgc	ggg	acc	aac	961
117	Asp	Cys	Arg	Asp	Trp	Ser	Asp	Glu	Pro	Ile	Lys	Glu	Cys	Gly	Thr	Asn	
118	305							310				315					
120	gaa	tgc	ttg	gac	aac	aa	ggc	ggc	tgt	tcc	cac	gtc	tgc	aat	gac	ttt	1009
121	Glu	Cys	Leu	Asp	Asn	Asn	Gly	Gly	Cys	Ser	His	Val	Cys	Asn	Asp	Leu	
122	320							325				330					
124	aag	atc	ggc	tac	gag	tgc	ctg	tgc	ccc	gac	ggc	ttc	cag	ctg	gtg	gcc	1057
125	Lys	Ile	Gly	Tyr	Glu	Cys	Leu	Cys	Pro	Asp	Gly	Phe	Gln	Leu	Val	Ala	
126	335							340				345					
128	cag	cga	aga	tgc	gaa	gat	atc	gat	gag	tgt	cag	gat	ccc	gac	acc	tgc	1105
129	Gln	Arg	Arg	Cys	Glu	Asp	Ile	Asp	Glu	Cys	Gln	Asp	Pro	Asp	Thr	Cys	

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130	350	355	360	
132	agc cag ctc tgc gtg aac ctg gag ggt ggc tac aag tgc cag tgt gag			1153
133	Ser Gln Leu Cys Val Asn Leu Glu Gly Gly Tyr Lys Cys Gln Cys Glu			
134	365	370	375	380
136	gaa ggc ttc cag ctg gac ccc cac acg aag gcc tgc aag gct gtg gtc			1201
137	Glu Gly Phe Gln Leu Asp Pro His Thr Lys Ala Cys Lys Ala Val Val			
138	385	390	395	
140	cct gat aaa act gtg aga tgg tgt gca gtg tcg gag cat gag gcc act			1249
141	Pro Asp Lys Thr Val Arg Trp Cys Ala Val Ser Glu His Glu Ala Thr			
142	400	405	410	
144	aag tgc cag agt ttc cgc gac cat atg aaa agc gtc att cca tcc gat			1297
145	Lys Cys Gln Ser Phe Arg Asp His Met Lys Ser Val Ile Pro Ser Asp			
146	415	420	425	
148	ggt ccc agt gtt gct tgt gtg aag aaa gcc tcc tac ctt gat tgc atc			1345
149	Gly Pro Ser Val Ala Cys Val Lys Lys Ala Ser Tyr Leu Asp Cys Ile			
150	430	435	440	
152	agg gcc att gcg gca aac gaa gcg gat gct gtg aca ctg gat gca ggt			1393
153	Arg Ala Ile Ala Ala Asn Glu Ala Asp Ala Val Thr Leu Asp Ala Gly			
154	445	450	455	460
156	ttg gtg tat gat gct tac ttg gct ccc aat aac ctg aag cct gtg gtg			1441
157	Leu Val Tyr Asp Ala Tyr Leu Ala Pro Asn Asn Leu Lys Pro Val Val			
158	465	470	475	
160	gca gag ttc tat ggg tca aaa gag gat cca cag act ttc tat tat gct			1489
161	Ala Glu Phe Tyr Gly Ser Lys Glu Asp Pro Gln Thr Phe Tyr Tyr Ala			
162	480	485	490	
164	gtt gct gtg gtg aag aag gat agt ggc ttc cag atg aac cag ctt cga			1537
165	Val Ala Val Val Lys Lys Asp Ser Gly Phe Gln Met Asn Gln Leu Arg			
166	495	500	505	
168	ggc aag aag tcc tgc cac acg ggt cta ggc agg tcc gct ggg tgg aac			1585
169	Gly Lys Lys Ser Cys His Thr Gly Leu Gly Arg Ser Ala Gly Trp Asn			
170	510	515	520	
172	atc ccc ata ggc tta ctt tac tgt gac tta cct gag cca cgt aaa cct			1633
173	Ile Pro Ile Gly Leu Leu Tyr Cys Asp Leu Pro Glu Pro Arg Lys Pro			
174	525	530	535	540
176	ctt gag aaa gca gtg gcc aat ttc ttc tcg ggc agc tgt gcc cct tgt			1681
177	Leu Glu Lys Ala Val Ala Asn Phe Phe Ser Gly Ser Cys Ala Pro Cys			
178	545	550	555	
180	gct gat ggg acg gac ttc ccc cag ctg tgt caa ctg tgt cca ggg tgt			1729
181	Ala Asp Gly Thr Asp Phe Pro Gln Leu Cys Gln Leu Cys Pro Gly Cys			
182	560	565	570	
184	ggc tgc tcc acc ctt aac caa tac ttc ggc tac tcg gga gcc ttc aag			1777
185	Gly Cys Ser Thr Leu Asn Gln Tyr Phe Gly Tyr Ser Gly Ala Phe Lys			
186	575	580	585	
188	tgt ctg aag gat ggt gct ggg gat gtg gcc ttt gtc aag cac tcg act			1825
189	Cys Leu Lys Asp Gly Ala Gly Asp Val Ala Phe Val Lys His Ser Thr			
190	590	595	600	
192	ata ttt gag aac ttg gca aac aag gct gac agg gac cag tat gag ctg			1873
193	Ile Phe Glu Asn Leu Ala Asn Lys Ala Asp Arg Asp Gln Tyr Glu Leu			
194	605	610	615	620

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196 ctt tgc cta gac aac acc cg ^g aag cc ^g gta gat gaa tac aag gac tgc	1921
197 Leu Cys Leu Asp Asn Thr Arg Lys Pro Val Asp Glu Tyr Lys Asp Cys	
198 625 630 635	
200 cac ttg gcc cag gtc cct tct cat acc gtc gtg gcc cga agt atg ggc	1969
201 His Leu Ala Gln Val Pro Ser His Thr Val Val Ala Arg Ser Met Gly	
202 640 645 650	
204 ggc aag gag gac ttg atc tgg gag ctt ctc aac cag gcc cag gaa cat	2017
205 Gly Lys Glu Asp Leu Ile Trp Glu Leu Leu Asn Gln Ala Gln Glu His	
206 655 660 665	
208 ttt ggc aaa gac aaa tca aaa gaa ttc caa cta ttc agc tct cct cat	2065
209 Phe Gly Lys Asp Lys Ser Lys Glu Phe Gln Leu Phe Ser Ser Pro His	
210 670 675 680	
212 ggg aag gac ctg ctg ttt aag gac tct gcc cac ggg ttt tta aaa gtc	2113
213 Gly Lys Asp Leu Leu Phe Lys Asp Ser Ala His Gly Phe Leu Lys Val	
214 685 690 695 700	
216 ccc cca agg atg gat gcc aag atg tac ctg ggc tat gag tat gtc act	2161
217 Pro Pro Arg Met Asp Ala Lys Met Tyr Leu Gly Tyr Glu Tyr Val Thr	
218 705 710 715	
220 gcc atc cg ^g aat cta cg ^g gaa ggc aca tgc cca gaa gcc cca aca gat	2209
221 Ala Ile Arg Asn Leu Arg Glu Gly Thr Cys Pro Glu Ala Pro Thr Asp	
222 720 725 730	
224 gaa tgc aag cct gtg aag tgg tgt ggc ctg agc cac cac gag agg ctc	2257
225 Glu Cys Lys Pro Val Lys Trp Cys Ala Leu Ser His His Glu Arg Leu	
226 735 740 745	
228 aag tgt gat gag tgg agt gtt aac agt gta ggg aaa ata gag tgt gta	2305
229 Lys Cys Asp Glu Trp Ser Val Asn Ser Val Gly Lys Ile Glu Cys Val	
230 750 755 760	
232 tca gca gag acc acc gaa gac tgc atc gcc aag atc atg aat gga gaa	2353
233 Ser Ala Glu Thr Thr Glu Asp Cys Ile Ala Lys Ile Met Asn Gly Glu	
234 765 770 775 780	
236 gct gat gcc atg agc ttg gat gga ggg ttt gtc tac ata ggc ggc aag	2401
237 Ala Asp Ala Met Ser Leu Asp Gly Gly Phe Val Tyr Ile Ala Gly Lys	
238 785 790 795	
240 tgt ggt ctg gtg cct gtc ttg gca gaa aac tac aat aag agc gat aat	2449
241 Cys Gly Leu Val Pro Val Leu Ala Glu Asn Tyr Asn Lys Ser Asp Asn	
242 800 805 810	
244 tgt gag gat aca cca gag gca ggg tat ttt gct gta gca gtg gtg aag	2497
245 Cys Glu Asp Thr Pro Glu Ala Gly Tyr Phe Ala Val Ala Val Val Lys	
246 815 820 825	
248 aaa tca gct tct gac ctc acc tgg gac aat ctg aaa ggc aag aag tcc	2545
249 Lys Ser Ala Ser Asp Leu Thr Trp Asp Asn Leu Lys Gly Lys Lys Ser	
250 830 835 840	
252 tgc cat acg gca gtt ggc aga acc gct ggc tgg aac atc ccc atg ggc	2593
253 Cys His Thr Ala Val Gly Arg Thr Ala Gly Trp Asn Ile Pro Met Gly	
254 845 850 855 860	
256 ctg ctc tac aat aag atc aac cac tgc aga ttt gat gaa ttt ttc agt	2641
257 Leu Leu Tyr Asn Lys Ile Asn His Cys Arg Phe Asp Glu Phe Phe Ser	
258 865 870 875	
260 gaa ggt tgt gcc cct ggg tct aag aaa gac tcc agt ctc tgt aag ctg	2689

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261	Glu	Gly	Cys	Ala	Pro	Gly	Ser	Lys	Lys	Asp	Ser	Ser	Leu	Cys	Lys	Leu	
262				880				885						890			
264	tgt	atg	ggc	tca	ggc	cta	aac	ctg	tgt	gaa	ccc	aac	aac	aaa	gag	gga	2737
265	Cys	Met	Gly	Ser	Gly	Leu	Asn	Leu	Cys	Glu	Pro	Asn	Asn	Lys	Glu	Gly	
266								895						905			
268	tac	tac	ggc	tac	aca	ggc	gct	ttc	agg	tgt	ctg	gtt	gag	aag	gga	gat	2785
269	Tyr	Tyr	Gly	Tyr	Thr	Gly	Ala	Phe	Arg	Cys	Leu	Val	Glu	Lys	Gly	Asp	
270							910				915		920				
272	gtg	gcc	ttt	gtg	aaa	cac	cag	act	gtc	cca	cag	aac	act	ggg	gga	aaa	2833
273	Val	Ala	Phe	Val	Lys	His	Gln	Thr	Val	Pro	Gln	Asn	Thr	Gly	Gly	Lys	
274							925				930		935			940	
276	aac	cct	gat	cca	tgg	gct	aag	aat	ctg	aat	gaa	aaa	gac	tat	gag	ttg	2881
277	Asn	Pro	Asp	Pro	Trp	Ala	Lys	Asn	Leu	Asn	Glu	Lys	Asp	Tyr	Glu	Leu	
278								945			950		955				
280	ctg	tgc	ctt	gat	ggt	acc	agg	aaa	cct	gtg	gag	gag	tat	gcg	aac	tgc	2929
281	Leu	Cys	Leu	Asp	Gly	Thr	Arg	Lys	Pro	Val	Glu	Glu	Tyr	Ala	Asn	Cys	
282							960			965		970					
284	cac	ctg	gcc	aga	gcc	ccg	aat	cac	gct	gtg	gtc	aca	cg	aaa	gat	aag	2977
285	His	Leu	Ala	Arg	Ala	Pro	Asn	His	Ala	Val	Val	Thr	Arg	Lys	Asp	Lys	
286							975			980		985					
288	gaa	gct	tgc	gtc	cac	aag	ata	tta	cgt	caa	cag	cag	cac	cta	ttt	gga	3025
289	Glu	Ala	Cys	Val	His	Lys	Ile	Leu	Arg	Gln	Gln	Gln	His	Leu	Phe	Gly	
290							990			995		1000					
292	agc	aac	gta	act	gac	tgc	tcg	ggc	aac	ttt	tgt	ttg	ttc	cg	tcg	gaa	3073
293	Ser	Asn	Val	Thr	Asp	Cys	Ser	Gly	Asn	Phe	Cys	Leu	Phe	Arg	Ser	Glu	
294							1005			1010		1015			1020		
296	acc	aag	gac	ctt	ctg	tgc	aga	gat	gac	aca	gta	tgt	ttg	gcc	aaa	ctt	3121
297	Thr	Lys	Asp	Leu	Leu	Phe	Arg	Asp	Asp	Thr	Val	Cys	Leu	Ala	Lys	Leu	
298							1025			1030		1035					
300	cat	gac	aga	aac	aca	tat	gaa	aaa	tac	tta	gga	gaa	gaa	tat	gtc	aag	3169
301	His	Asp	Arg	Asn	Thr	Tyr	Glu	Lys	Tyr	Leu	Gly	Glu	Glu	Tyr	Val	Lys	
302							1040			1045		1050					
304	gct	gtt	ggt	aac	ctg	aga	aaa	tgc	tcc	acc	tca	tca	ctc	ctg	gaa	gcc	3217
305	Ala	Val	Gly	Asn	Leu	Arg	Lys	Cys	Ser	Thr	Ser	Ser	Leu	Leu	Glu	Ala	
306							1055			1060		1065					
308	tgc	act	ttc	cgt	aga	cct	taaaatctca	gaggttagggc	tgccaccaag							3265	
309	Cys	Thr	Phe	Arg	Arg	Pro											
310							1070										
312	gtgaagatgg	gaacgcagat	gatccatgag	tttgccctgg	tttcactggc	ccaagtggtt											3325
313	tgtgctaacc	acgtctgtct	tcacagctct	gtgttgcct	gtgtgctgaa	caaaaaataaa											3385
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323	1				5				10			15					
324	Ala	Ala	Ala	Gly	Thr	Ala	Val	Gly	Asp	Arg	Cys	Glu	Arg	Asn	Glu	Phe	

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L:15 M:271 C: Current Filing Date differs, Replaced Current Filing Date